

**Abstract of the Disclosure**

Multi-wavelength light, including a plurality of segments of light signal with a different wavelength each, is inputted into a Raman amplification fiber. Pumping light generated by a pumping light source is supplied to the Raman amplification fiber in the opposite direction of the transmission direction of the multi-wavelength light. An auxiliary light source generates auxiliary light. An auxiliary light control circuit adjusts the optical power of the auxiliary light with a prescribed response time, based on the change in input power of the multi-wavelength light. The auxiliary light is supplied to the Raman amplification fiber in the same direction as the transmission direction of the multi-wavelength light.